(19) Japan Patent Office (JP)

(12) PATENT PUBLICATION (B2)

(11) Patent Number

Patent No. 3408154

(P3408154)

(24) Date of Grant Heisei 15 March 14 (2003. 3. 14)

(45) Issue Date Heisei 15 May 19 (2003. 5. 19)

(51) Int. Cl. 7	Identification Mark	FI		
H04M 11/00	302	H04M 11/00	302	
H04B 7/26		H04N 1/00	107	A
H04N 1/00	107	H04B 7/26		M

Number of Claims 3 (23 pages)

(21) Application Number	H10-180964
(62) Indication of Divisional Application	Divisional of H7-309275
(22) Filing Date	Heisei 4. November 9 (1992.11.9)
(65) Number of Laid-Open Publication	H10-341290
(43) Date of Laid-Open Publication	Heisei 10 December 22 (1998. 12. 22)
Date of Request for Examination	Heisei 10 November 30 (1998. 11. 30)
Number of Judgment	Objection 2001-1701 (P2001-1701/J1)
Date of Request for Judgment	Heisei 13 February 8 (2001. 2. 8)

Accelerated Examination

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(56) References Patent Laid-Open H4-182848 (JP, A)
Patent Laid-Open H1-314462 (JP, A)
Utility Design Laid-Open S64-47129 (JP, U)

(54) [Name of Invention] Portable Communicator

(57) [Scope of Claims]

[Claim 1] A portable communicator comprising:

a radio communication means that is connected to a public network by a radio transmission and performs transmission or reception via the public network;

a computer that performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means;

a first display that shows a predetermined image by the computer, and a second display;

a power supply controller that supplies power to a whole body including the first display and the computer so as to make an active state where input and output using the first display are performed when an on switch to output an on signal is operated, and supplies power to only a predetermined portion including the computer and the radio communication means so as to make a standby state where input and output using the first display are not performed when an off switch to output an off signal is operated;

a housing to hold the radio communication means, the computer, the first display and

the second display, with all of them combined;

the computer not depending on operational states of the on switch and the off switch;

a reception standby judgment means that judges whether the radio communication means is on reception standby being ready for reception; and

a reception standby display means that performs a display of reception standby on the second display when the reception standby judgment means judges that the radio communication means is on reception standby.

[Claim 2] A portable communicator comprising:

a radio communication means that is connected to a public network by a radio transmission and performs transmission or reception via the public network;

a computer that performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means;

a first display that shows a predetermined image by the computer, and a second display;

a power supply controller that supplies power from a storage battery to a whole body including the first display and the computer so as to make an active state where input and output using the first display are performed when an on switch to output an on signal is operated, and supplies power from the storage battery to only a predetermined portion including the computer and the radio communication means so as to make a standby state where input and output using the first display are not performed when an off switch to output an off signal is operated;

a housing to hold the radio communication means, the computer, the first display and the second display, with all of them combined;

the computer not depending on operational states of the on switch and the off switch;

a power supply capacity detection means to detect a power supply capacity of the storage battery; and

a power supply capacity display means that performs a display of a power supply capacity that is detected by the power supply capacity detection means on the second display.

[Claim 3] A portable communicator comprising:

a radio communication means that is connected to a public network by a radio transmission and performs transmission or reception via the public network;

a computer that performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means;

a first display that shows a predetermined image by the computer, and a second display;

a power supply controller that supplies power from a storage battery to a whole body including the first display and the computer so as to make an active state where input and output using the first display are performed when an on switch to output an on signal is operated, and supplies power from the storage battery to only a predetermined portion including the computer and the radio communication means so as to make a standby state where input and output using the first display are not performed when an off switch to output an off signal is operated;

a housing to hold the radio communication means, the computer, the first display and the second display, with all of them combined;

the computer not depending on operational states of the on switch and the off switch;

a power supply capacity detection means to detect a power supply capacity of the storage battery;

a power supply capacity display means that performs a display of a power supply capacity that is detected by the power supply capacity detection means on the second display;

a reception standby judgment means that judges whether the radio communication means is on reception standby being ready for reception; and

a reception standby display means that performs a display of reception standby on the second display when the reception standby judgment means judges that the radio communication means is on reception standby.

[Detailed Description of the Invention]

[0001]

[Industrial Field of the Invention] The present invention relates to a structure of a portable communicator.

[0002]

[Prior Art] Conventionally, a radio paging device and a radio telephone device are used as a portable communication device. A radio paging device has a function of receiving a calling signal or a message, and outputting a beep sound, or showing a message on a display.

[0003] A radio telephone device has a function of transmission or reception via a public network. A radio telephone device is used for a telephone call, or connected to a fax machine and a portable personal computer.

[0004]

[Problems to be Solved by the Invention] With the conventional communication device as this, one cannot perform desired communication, taking this along. For example, when a radio telephone device is taken along, a telephone call is possible, but sending or receiving data of a word processor or a facsimile cannot be performed. In addition, when a radio telephone device, a portable computer and a portable fax machine are taken along together, the above-mentioned communication could be performed, but that is not realistic.

[0005] The object of the present invention is to solve the problems described above.

[0006]

[Means of Solving the Problems] The gist of the invention in Claim 1 is that a portable communicator comprises: a radio communication means that is connected to a public network by a radio transmission and performs transmission or reception via the public network; a computer that performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means; a first display that shows a predetermined image by the computer, and a second display; a power supply controller that supplies power to a whole body including the first display and the computer so as to make an active state where input and output using the first display are performed when an on switch to output an on signal is operated, and supplies power to only a predetermined portion including the computer and the radio communication means so as to make a standby state where input and output using the first display are not performed when an off switch to output an off signal is operated; a housing to hold the radio communication means, the computer, the first display and the second display, with all of them combined; the computer not depending on operational

states of the on switch and the off switch; a reception standby judgment means that judges whether the radio communication means is on reception standby being ready for reception; and a reception standby display means that performs a display of reception standby on the second display when the reception standby judgment means judges that the radio communication means is on reception standby.

[0007] The gist of the invention in Claim 2 is that a portable communicator comprises: a radio communication means that is connected to a public network by a radio transmission and performs transmission or reception via the public network; a computer that performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means; a first display that shows a predetermined image by the computer, and a second display; a power supply controller that supplies power from a storage battery to a whole body including the first display and the computer so as to make an active state where input and output using the first display are performed when an on switch to output an on signal is operated, and supplies power from the storage battery to only a predetermined portion including the computer and the radio communication means so as to make a standby state where input and output using the first display are not performed when an off switch to output an off signal is operated; a housing to hold the radio communication means, the computer, the first display and the second display, with all of them combined; the computer not depending on operational states of the on switch and the off switch; a power supply capacity detection means to detect a power supply capacity of the storage battery; and a power supply capacity display means that performs a display of a power supply capacity that is detected by the power supply capacity detection means on the second display.

[0008] The gist of the invention in Claim 3 is that a portable communicator comprises: a radio communication means that is connected to a public network by a radio transmission and performs transmission or reception via the public network; a computer that performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means; a first display that shows a predetermined image by the computer, and a second display; a power supply controller that supplies power from a storage

battery to a whole body including the first display and the computer so as to make an active state where input and output using the first display are performed when an on switch to output an on signal is operated, and supplies power from the storage battery to only a predetermined portion including the computer and the radio communication means so as to make a standby state where input and output using the first display are not performed when an off switch to output an off signal is operated; a housing to hold the radio communication means, the computer, the first display and the second display, with all of them combined; the computer not depending on operational states of the on switch and the off switch; a power supply capacity detection means to detect a power supply capacity of the storage battery; a power supply capacity display means that performs a display of a power supply capacity that is detected by the power supply capacity detection means on the second display; a reception standby judgment means that judges whether the radio communication means is on reception standby being ready for reception; and a reception standby display means that performs a display of reception standby on the second display when the reception standby judgment means judges that the radio communication means is on reception standby.

[0009]

[Operation] When an on switch of a portable communicator in Claim 1 of the present invention is operated, electric power source is supplied to the whole housing which holds a radio communication means, a computer, a first display and a second display together. By this, a whole body including the first display, the computer and the radio communication means becomes to be in an active state, the radio communication means is connected to a public network by a radio transmission, and transmission or reception is performed via the public network. Then the computer performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means. And the first display and the second display show predetermined images by the computer. In this way, input and output using the first display become possible.

[0010] This active state terminates when an off switch is operated. When the off switch is operated, or until the on switch is operated, electric power source is supplied to only a predetermined portion including the computer and the radio communication means. By this,

a standby state where input and output using the first display are not performed is made, but in the case where the radio communication means is judged to be on reception standby being ready for reception by a reception standby judgment means which the computer has, a display of reception standby is shown on the second display by a reception standby display means.

[0011] In this way, confirmation of reception standby becomes possible even in a standby state where electric power source is not supplied to the whole housing, and monitoring the operating state of a portable communicator becomes possible at all times. When an on switch of a portable communicator in Claim 2 of the present invention is operated, electric power source from a storage battery is supplied to the whole housing which holds a radio communication means, a computer, a first display and a second display together. By this, a whole body including the first display, the computer and the radio communication means becomes to be in an active state, the radio communication means is connected to a public network by a radio transmission, and transmission or reception is performed via the public network. Then the computer performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means. And the first display and the second display show predetermined images by the computer. In this way, input and output using the first display become possible.

[0012] This active state terminates when an off switch is operated. When the off switch is operated, or until the on switch is operated, electric power source from a storage battery is supplied to only a predetermined portion including the computer and the radio communication means. By this, a standby state where input and output using the first display are not performed is made, but a power supply capacity of the storage battery that is detected by a power supply capacity detection means is shown on the second display by a power supply capacity display means.

[0013] In this way, confirmation of a power supply capacity becomes possible even in a standby state where electric power source from a storage battery is not supplied to a whole body held by the housing, and monitoring the operating state of a portable communicator becomes possible at all times. When an on switch of a portable communicator in Claim 3 of the present invention is operated, electric power source from a storage battery is supplied to

the whole housing which holds a radio communication means, a computer, a first display and a second display together. By this, a whole body including the first display, the computer and the radio communication means comes to be in an active state, the radio communication means is connected to a public network by a radio transmission, and transmission or reception is performed via the public network. Then the computer performs output of a control command to the radio communication means, and a process to input data from the public network via the radio communication means or send data to the public network via the radio communication means. And the first display and the second display show predetermined images by the computer. In this way, input and output using the first display become possible.

[0014] This active state terminates when an off switch is operated. When the off switch is operated, or until the on switch is operated, electric power source from a storage battery is supplied to only a predetermined portion including the computer and the radio communication means. By this, a standby state where input and output using the first display are not performed is made, but in the case where the radio communication means is judged to be on reception standby being ready for reception by a reception standby judgment means which the computer has, a display of reception standby is shown on the second display by a reception standby display means. In addition, a power supply capacity of the storage battery that is detected by a power supply capacity detection means is shown on the second display by a power supply capacity display means.

[0015] In this way, confirmation of reception standby and confirmation of a power supply capacity become possible even in a standby state where electric power source from a storage battery is not supplied to a whole body held by the housing, and monitoring the operating state of a portable communicator becomes possible at all times.

[0016]

[Embodiment] Next, an embodiment of the present invention will be described. Fig. 1 and Fig. 2 are perspective views of a personal communicator 1, and Fig. 3 is a block diagram of it. The personal communicator 1 is provided with a pen input device 3, a main body 5 and a radio telephone device 7. The pen input device 3 is held in a receiving frame 9, and the receiving frame 9 and the main body 5 are connected to each other in a connection portion 11

so as to be openable and closable in the direction of an arrow YY. Between the receiving frame 9 and the main body 5, a retention mechanism, not shown in the figure, that performs retention of the open state shown in Fig. 1 and retention of the close state shown in Fig. 2 is provided.

[0017] In the receiving frame 9, a microphone 13, a display 15, an on switch 17 and an off switch 19 are provided near the pen input device 3. A lettering 13A "microphone" is put near the microphone 13, a lettering 17A "on" is put near the on switch 17, and a lettering 19A "off" is put near the off switch 19. Each of the on switch 17 and the off switch 19 has two switch panels 17AA, 17BB, 19AA and 19BB respectively. These are set 3 mm concave from the surface of the receiving frame 9. The switch panels 17AA and 17BB output an on signal when the both are operated at almost the same time. The switch panels 19AA and 19BB output an off signal when the both are operated at almost the same time. In this way, an erroneous operation caused by an accidental hand touching or the like when taken along can be prevented.

[0018] The radio telephone device 7 and the main body 5 are held in a receiving case 21. The receiving case 21 is provided with CPU 23, a voice analysis processor 24, ROM 25, RAM 27, EEPROM 29, a pen input controller unit 31, an input interface 33, a storage battery 35, power sockets 37 and 39, a telephone controller 41, a voice signal generation unit 43, an input and output controller 45, an ear telephone call controller 47, an ear telephone call device 49, a speaker 51, a speaker on switch 52, a display controller 53, an input pen 55, an input pen storage hole 57, a pen takeoff button 59, an output interface 61, a monitor lamp 63, a monitor speaker 65, an attenuator 66, a telephone output controller 67, a telephone output connector 69, a data input and output controller 71, a data input and output connector 73, a built-in application connector 74, a card connectors 75 and 77, a card storage portion 79, a power supply controller 81, a speaker storage portion 83, an ear telephone call device storage 85, a leg 87, a radio telephone unit 89, an antenna 91, and an antenna storage portion 93.

[0019] Into the built-in application connector 74, an application software ROM 94 is inserted. Word processor software, database software and communicator center software are stored in the application software ROM 94. These will be described later.

[0020] In the card storage portion 79, application software cards 95 and 97 are stored. The

application software cards 95 and 97 are connected to the card connectors 75 and 77. A telephone cable 99 is connected to the telephone output connector 69. And the telephone cable 99 is connected to a facsimile machine 101. A data output cable 103 is connected to the data input and output connector 73. And the data output cable 103 is connected to a personal computer 105.

[0021] The radio telephone device 7 is structured by the radio telephone unit 89, the ear telephone call controller 47, the input and output controller 45, the ear telephone call device 49, the speaker 51, the microphone 13 and the antenna 91, and has a function to perform transmission to and reception from a radio network that is not shown in the figure. The telephone controller 41 controls the input and output controller 45 and the radio telephone unit 89, based on a command from the CPU 23. The voice signal generation unit 43 synthesizes predetermined voice, based on the command from the CPU 23, and outputs it to the radio telephone unit 89 via the input and output controller 45.

[0022] The input interface 33 detects voltage of the storage battery 35. The power supply controller 81 supplies electric power source to the whole personal communicator 1 so that an active state is made when the on switch 17 is operated, and supplies electric power source only to a predetermined portion of the personal communicator 1 so that a standby state is made when the off switch 19 is operated.

[0023] The pen input device 3 is provided with a liquid crystal display 3A and a sensor layer 3B. The liquid crystal display 3A is connected to the pen input controller 31, and displays predetermined image data on a display surface 3C. The sensor layer 3B is connected to the pen input controller 31, and is located under the liquid crystal display 3A so as to detect the position of a pen tip 55A of the input pen 55. A coil which is not shown in the figure is set near the pen tip 55A of the input pen 55. The input pen 55 is provided with a button 55B for click/drag. The pen input device 3 and the input pen 55 detect the positions of pen input by a known electromagnetic giving and receiving system. The pen input device 3 has a function of character input without using keyboards and a function of a pointing device, by the pen input device that is stored in the ROM 25.

[0024] As shown in Fig. 1, the speaker 51 is provided with a speaker main body 51A, a supporting member 51B and a connecting member 51C. The speaker main body 51A and

the supporting member 51B are connected to each other by the connecting member 51C so that turning in the direction of arrows YA and YB is possible. The speaker main body 51A and the supporting member 51B are stored in the speaker storage portion 83 by being pushed in the direction of an arrow YC. In addition, the speaker 51 is connected to the speaker on switch 52, and when pulled out in the direction of an arrow YD, "off" state switches to "on" state. The supporting member 51B is connected to an excretion mechanism that is not shown in the figure, and when a portion with a lettering "push" 51D is pushed in the direction of an arrow YC in the storage state, the speaker main body 51A pops out to a position for use. In the excretion mechanism that is not shown in the figure, an operation link of the speaker on switch 52, not shown in the figure, is attached.

[0025] The ear telephone call device 49 is stored in the ear telephone call device storage 85, when not used. In addition, when it is used, it is pulled out for use. After used, it is stored when the ear telephone call device storage 85 is turned in the direction of an arrow 85A by a finger put in a finger rest hole 85B.

[0026] The antenna 91 is usually stored in the antenna storage portion 93. And when the signal strength is to be improved, it is pulled out for use. Therefore, it has freedom of movement in the direction of arrows YE and YF, and can also be turned in the direction of arrows YH and YG. As shown in Fig. 2, the input pen 55 is stored in the input pen storage hole 57 when it is not used. The pen takeoff button 59 is connected to an excretion mechanism not shown in the figure, that makes the input pen 55 pop out when pushed in.

[0027] The ROM 25 stores a control program and a variable table. The EEPROM 29 holds a setting value, a designated value and the like. Next, a control performed by the CPU 23 will be described. Fig. 4 is a schematic diagram of a display condition of the display 15, Fig. 5 is a schematic diagram of a display control, and Fig. 6 is a flow chart of a display control process routine.

[0028] As shown in Fig. 4 (A), a display surface 15A of the display 15 has a power supply remaining amount display region 15B and an operating state display region 15C. The power supply remaining amount display region 15B has a "power supply" display 15D, a "0 %" display 15E, a "100 %" display 15F and a remaining amount display 15G. The remaining amount display 15G shows the remaining amount of the storage battery 35 with a bar graph.

The operating state display region 15C has variations of display mode shown in Fig. 5 (A) to (K).

[0029] The display control process shown in Fig. 6 is performed by the CPU 23 every predetermined time. First, power supply capacity detection is performed (step 100, "step" is described as "S" hereinafter.). The power supply capacity is detected based on a voltage of the storage battery 35, that is inputted through the input interface 33. Then, power supply capacity display is performed (S110). The display is performed by the remaining amount display 15G. For example, when the power supply capacity is 100 %, it is displayed as shown in Fig. 4 (A), and when 80 %, it is displayed as shown in Fig. 4 (B).

[0030] Next, whether or not it is on reception standby is judged (S120). The reception standby is judged by a setting state of a reception standby flag that is set in a predetermined area of the RAM 27. When it is not on reception standby, the process is shifted to the next process directly. When it is on reception standby, a reception standby display is shown (S130). For the reception standby display, displays shown in Fig. 5 (A), or (I), (J) and (K) are displayed on the display 15.

[0031] Next, whether or not it is on fax reception is judged (S140). The fax reception is performed by a fax reception state flag. When it is on fax reception, a fax reception display is performed. (S150) The fax reception display is performed as shown in Fig. 5 (B). After that, in the same way, when it is on data reception (S160), a data reception display as shown in Fig. 5 (C) is performed (S170), when it is on fax transmission (S180), a fax transmission display as shown in Fig. 5 (D) is performed (S190), when it is on calling (S200), a calling display as shown in Fig. 5 (E) is performed (S210), when it is on data transmission (S220), a data transmission display as shown in Fig. 5 (F) is performed (S230), when it is on telephone calling (S240), a telephone calling display as shown in Fig. 5 (G) is performed (S250), and when it is on voice mail recording (S260), a voice mail recording display as shown in Fig. 5 (H) is performed (S260).

[0032] Next, a data storing amount is detected (S280). As the data storing amount, a data storing amount of the voice mail recording, a data storing amount of the fax received, and a data storing amount of the data received are detected. Next, a data storing amount display is performed (S290). The data storing amount of the voice mail recording is displayed as

shown in Fig. 5 (I), the data storing amount of the fax is displayed as shown in Fig. 5 (J), and the data storing amount of the data received is displayed as shown in Fig. 5 (K).

[0033] The display control above is performed at all times, not depending on the operational state of the on switch 17 and the off switch 19. In this way, the operating state of the personal communicator 1 can be monitored at all times. Fig. 7 is a flow chart of a monitor control process routine. It is performed by the CPU 23 every predetermined time. First, whether it is on reception or not is judged (S300). When it is on reception, a reception display is performed (S310). As the reception display, the monitor lamp 63 is lighted green, and a reception sound is outputted from the monitor speaker 65. The volume of the reception sound is adjusted by the attenuator 66.

[0034] Next, judgment of transmission is performed (S320), and a transmission display is performed when it is on transmission (S330). As the transmission display, the monitor lamp 63 is lighted red, and a transmission sound is outputted from the monitor speaker 65. Next, whether it is abnormal or not is judged (S340), and an abnormal display is performed when it is abnormal (S350). As for the abnormality, various abnormalities such as a memory being full state and voltage reduction of the storage battery 35 are detected. As the display, the monitor lamp 63 is lighted green and red alternately, and a warning sound is outputted from the monitor speaker 65.

[0035] By the monitor control described above, the operating condition of the personal communicator 1 can be monitored. Fig. 8 is a diagram to show a use condition of the personal communicator 1 on standby and in a charging state. When used in the condition shown here, the condition of the personal communicator 1 can be understood in a moment due to the monitor lamp 63 and the monitor speaker 65. The personal communicator 1 is in a standby state, standing on a table 110 with its legs 87 on the under side, and supplied with charging electricity by an external power unit 111.

[0036] Fig. 9 is a flow chart of a communicator control process routine, and Fig. 10 is a schematic diagram of a situation report screen. The communicator control process routine is booted up by the CPU 23 when an on signal is outputted from the on switch 17, and is performed repeatedly until an off signal is outputted from the off switch 19. First, a situation check is performed (S400), then a situation report screen display is performed (S410). Fig.

10 is an example of the situation report screen that is displayed on the display surface 3C of the pen input device 3. On the situation report screen, a situation report display 121, an operating state display region 123, a memory remaining amount display 125, a fax data storing amount display 127, a data storing amount display 129, a voice mail recording storing amount display 131, a fax menu display 133, a data menu display 135, a telephone menu display 137, an application menu display 139 and a setting menu display 141 are shown. In the operating state display region 123, either one of "reception standby", "fax reception", "data reception", "fax transmission", "calling", "data transmission", "telephone calling" and "voice mail recording" is displayed.

[0037] At the memory remaining amount display 125, the remaining amount of memory capable of storage for fax, data and voice mail recording is shown in percentage. Then, judgment is performed (S420). For the judgment, choice of an item by the input pen 55 is waited.

[0038] Here, in the case where the fax menu display 133 is chosen, a fax process is performed next (S430). Each process will be described later. In the case where the telephone menu display 137 is chosen, a telephone process is performed (S440). In the case where the data menu display 135 is chosen, a data process is performed (S450). In the case where the application menu display 139 is chosen, an application process is performed (S460). In the case where the setting menu display 141 is chosen, a setting process is performed (S470).

[0039] Fig. 11 is a flow chart of the fax process routine, and Fig. 12 is a schematic diagram of a document input screen. The fax process routine in Fig. 11 shows the content of S430 in Fig. 9. When the fax process routine is booted up, the document input screen is displayed first (S500). As shown by an example in Fig. 12, the document input screen has a menu region 151 and a document input region 153. In the menu region 151, a fax menu display 155, a fax transmission display 157, a received fax display display 159 and a cancellation display 161 are shown. The document input region 153 is blank at first.

[0040] After the display of the document input screen, judgment is performed (S510). In the judgment, whether a character input is chosen, the fax menu display 155 is chosen, the fax transmission display 157 is chosen, the received fax display display 159 is chosen, or the

cancellation display 161 is chosen is checked. Here, a choice of the character input means the case of choosing the document input region 153 by the input pen 55, as shown in Fig. 12.

[0041] In the case where the character input is chosen, a document process is performed next (S520). The document process holds the main part of a document input function of a pen input computer, and first, a cursor 163 is displayed on a point indicated by the input pen 55, for example, on a point 162. Next, a display of a pen input region frame 165 is performed. After the display of the pen input region frame 165, a pen input is waited. Here, as shown in Fig. 12, when Hiragana (Japanese syllabary characters) is inputted, it is traced and displayed in the pen input region frame 165. After that, when a conversion display 167 is chosen by the input pen 55, dictionary conversion is performed, and a sentence after the conversion is displayed at the position of the cursor 163. In addition, in the case where the conversion display 167 is chosen again, the dictionary conversion for the second option is performed. The converted sentence is fixed when there is the next pen input. Furthermore, when a deletion display 169 is chosen, a process to delete characters in the document input region 153 and a track of the pen input is performed. When a track display 171 is chosen, the track of the input pen 55 in the document input region 153 is inputted directly. An image that is displayed on the document input region 153 is stored in a fax data memory 27A in the RAM 27.

[0042] In the judgment of S510, in the case where the fax menu display 155 is chosen, a fax menu process is performed next (S530). In the case where the fax transmission display 157 is chosen, a fax transmission process is performed next (S540). And in the case where the received fax display display 159 is chosen, a received fax display process is performed next (S550). The details will be described later. In addition, in the case where the cancellation display 161 is chosen, the present routine is stopped once directly.

[0043] Fig. 13 is a flow chart of the fax menu process routine, and Fig. 14 is a schematic diagram of a fax menu screen. When the fax menu process is booted up, a display of the fax menu screen is performed first (S600). As shown by an example in Fig. 14, the fax menu screen has a menu region 181 and a document choice region 183. In the menu region 181, a next page display 185, a fax transmission display 187, a received fax display display 189, a cancellation display 191 and a deletion display 193 are shown. A document list 195 is

provided in the document choice region 183, and a document name display 197 is displayed on the document list 195.

[0044] After the display of the fax menu screen, judgment is performed (S610). In the judgment, whether a document choice is performed, or the next page display 185 is chosen, the fax transmission display 187 is chosen, the received fax display display 189 is chosen, the cancellation display 191 is chosen, or the deletion display 197 is chosen is judged.

[0045] Here, in the case of a document choice, that is, in the case where any document name display 197 is chosen, a document process is performed next (S630). In the document process, the document input screen shown in Fig. 12 is displayed first, and at the same time, document data stored in a document file 27B of the document name display 197 that is chosen is displayed on the document input region 153. The document file 27B is set in the RAM 27. After that, a document process which is almost the same as S520 described before is performed for the document data displayed. That is, sentences prepared beforehand can be edited and used.

[0046] In the judgment of S610, in the case where the next page display 185 is chosen, a page change process is performed. In the page change process, the document list 195 is changed to the next page. In the judgment, in the case where the fax transmission display 187 is chosen, a fax transmission process is performed (S640). In the case where the received fax display display 189 is chosen, a received fax display process is performed (S650), and in the case where the deletion display 193 is chosen, a deletion process is performed (S660). In addition, in the case where the cancellation display 191 is chosen, the present routine is stopped once directly.

[0047] Fig. 15 is a flow chart of the fax transmission process routine, and Fig. 16 is a schematic diagram of a fax transmission screen. When the fax transmission process is booted up, a display of the fax transmission screen is performed first (S700). As shown by an example in Fig. 16, the fax transmission screen has a menu region 201 and a transmission condition choice region 203. In the menu region 201, a setting display 205 and a cancellation display 207 are shown. A destination choice display 209, a transmission time choice display 211, a destination list 213 and a transmission time list 215 are provided for the transmission condition choice region 203. A destination name 217 is displayed in the

destination list 213, and a transmission time name 219 is displayed in the transmission time list 215.

[0048] After the display of the fax transmission screen, judgment is performed (S710). In the judgment, whether a destination choice is performed, a transmission time choice is performed, a choice of the setting display 205 is performed, or a choice of the cancellation display 207 is performed is judged. Here, in the case of the destination choice, that is, in the case where any destination name 217 is chosen, a transmission number setting process is performed next (S720). In the transmission number setting process, a process in which a telephone number set for the destination name 217 that is chosen is set in a transmission number memory 27C in the RAM 27 is performed first. After the setting, the process goes back to a judgment process.

[0049] In the judgment process, in the case of a transmission time choice, that is, in the case where any transmission time name 219 is chosen, a transmission time setting process is performed next (S730). In the transmission time setting process, a process in which the transmission time set for the transmission time name 219 that is chosen is set in a transmission time memory 27D in the RAM 27 is performed first.

[0050] After the setting, whether the set transmission time is immediate or not is judged (S740), and when it is not immediate, the present routine is stopped once directly. When the transmission time is immediate, fax transmission is performed next (S750). In the fax transmission process, a process in which the fax data stored in the fax data memory 27A in the RAM 27 is facsimile-transmitted to the destination set in the transmission number memory 27C is performed. In this way, a sentence or an image inputted by the pen input device 3 can be facsimile-transmitted to a desired destination on the spot. The case of not immediate transmission will be described later.

[0051] In the judgment of S710, in the case where the setting display 205 is chosen, a fax setting process is performed next (S760). In the fax setting process, the setting of paper size and a standard of facsimile, addition or change of the destination, and addition or change of the transmission time are performed by a fax setting process routine that is not shown in the figure. That is, a transmission condition to be set beforehand is set.

[0052] In the judgment, in the case where the cancellation display 207 is chosen, the present

routine is stopped once directly. Fig. 17 is a flow chart of a received fax display process routine, and Fig. 18 is a schematic diagram of a received fax list screen. When the received fax display process is booted up, a received fax list screen display is performed first (S800). As shown by an example in Fig. 18, the received fax list screen has a menu region 221 and a received fax choice region 223. In the menu region 221, a data output display 225 and a cancellation display 227 are shown. A received fax list display 229 and a received fax list 231 are provided for the received fax choice region 223, and a received fax name 233 is displayed in the received fax list 231.

[0053] After the display of the received fax list screen, judgment is performed (S810). In the judgment, whether a choice is made, the data output display 225 is chosen, or the cancellation display 227 is chosen is judged. Here, in the case where any received fax name 233 is chosen, a received fax display process is performed next (S820). In the received fax display process, the content stored in a received fax data memory 27E that corresponds to the received fax name 233 is displayed as an image on the pen input device 3.

[0054] In the judgment, in the case where the data output display 225 is chosen, a data output process is performed (S830). In the data output process, a data output screen that is not shown in the figure is displayed, choice of a method for output is requested, and the content stored in the received fax data memory 27E is outputted by the method chosen. For example, output to the other facsimile machine via the telephone output connector 69, or output to the other computer machine via the data input and output connector 73 is performed. By outputting to a facsimile machine, printing on a paper is performed.

[0055] In the judgment, in the case where the cancellation display 227 is chosen, the present routine is stopped once directly. By the received fax display process described above, reception via the radio telephone device 7 is performed, and the received fax data stored in the received fax data memory 27E can be displayed, outputted to an exterior portion and printed.

[0056] Fig. 19 is a flow chart of a deletion process routine. When the deletion process routine is booted up, a display of a fax list screen is performed first (S900). In the fax list screen that is not shown in the figure, data names to show the content stored in the fax data memory 27A and the content stored in the received fax data memory 27E are displayed. Next, a process to delete the chosen fax is performed (S910). In the process to delete the

chosen fax, a process to delete the stored data that corresponds to the data name chosen by the input pen 55 on the fax list screen not shown in the figure is performed.

[0057] By this deletion process, unwanted fax data for transmission or unwanted fax data received can be deleted. By the fax process of the communicator control in Fig. 9 (S430) described above, creation, transmission and display of the transmission data of fax can be performed only by the operation of the input pen 55.

[0058] Fig. 20 is a flow chart of a telephone process routine, Fig. 21 is a schematic diagram of a telephone menu screen, Fig. 22 is a schematic diagram of a message choice screen, Fig. 23 is a flow chart of a setting process routine, and Fig. 24 is a flow chart of a voice mail recording display process routine.

[0059] When the telephone process is booted up, a display of a telephone menu screen is performed first (S1000). As shown by an example in Fig. 21, the telephone menu screen has a menu region 241 and a transmission choice region 243. In the menu region 241, a setting display 245, a voice mail recording display display 247 and a cancellation display 249 are shown. A destination choice (next page) display 251, a destination list 253, a transmission condition display 254 and a transmission condition list 255 are provided for the transmission choice region 243. A destination name 257 is displayed in the destination list 253, and a transmission condition name 259 is displayed in the transmission condition list 255.

[0060] After the display of the telephone menu screen, judgment is performed next (S1010). In the judgment, whether any destination name 257 is chosen, the setting display 245 is chosen, the voice mail recording display display 247 is chosen, or the cancellation display 249 is chosen is judged. Here, in the case where any destination name is chosen, the next judgment is performed (S1020). In this judgment, whether an immediate display 261 is chosen or a message transmission display 263 is chosen from the transmission condition name 259, or whether the setting display 245, the voice mail recording display display 247 or the cancellation display 249 is chosen is judged. Here, in the case where the immediate display 261 is chosen, a telephone transmission is performed (S1030). In the telephone transmission, a telephone call is transmitted the destination chosen in S1010. In this way, a telephone call with the other side can be made.

[0061] In the judgment, in the case where the message transmission display 263 is chosen,

the message choice screen is displayed next (S1040). As shown by an example in Fig. 22, a menu region 271 and a message choice region 273 are displayed on the message choice screen. In the menu region 271, a telephone transmission display 275 and a cancellation display 277 are shown. A message choice display 279 and a message list 281 are provided for the message choice region 273, and a message name 283 is displayed in the message list 281.

[0062] After the display of the message choice screen, judgment is performed next (S1050). In the judgment, whether the cancellation display 277 is chosen, or any message name 283 is chosen is judged. Here, in the case where the cancellation display 277 is chosen, the present routine is stopped once directly, and in the case where any message name 283 is chosen, the content that corresponds to the message name 283 chosen is displayed next. A figure to show the display screen here is omitted. The content to be displayed is stored in a message data memory 27F in the RAM 27. The contents of the message data memory 27F is stored beforehand by a message content addition and change routine that is not shown in the figure, using the input pen 55.

[0063] After the display of the contents, judgment is performed (S1070). In the judgment, in the case where the telephone transmission display that is not shown in the figure is chosen, a telephone transmission is performed (S1030). In the telephone transmission here, after the connection to the other side, the chosen message is automatically outputted in voice. Here, in the case where there is a reply from the other side, the voice data is stored in a received telephone recording memory 27G. The content is played back by a received telephone recording play-back process that is not shown in the figure.

[0064] In the judgment, in the case where the cancellation display that is not shown in the figure is chosen, the present routine is stopped once directly. In this way, message transmission is cancelled. In the condition of the telephone menu screen display, in the case where the setting display 245 is chosen, a setting process is performed next (S1080). As shown in Fig, 23, in the setting process, a setting screen is displayed first (S1100). The setting screen, although the figure is omitted, has a voice mail recording execution display, a voice mail recording cancel display, a cancellation display, a voice mode display and a voice character conversion mode display. After the display of the setting screen, judgment is performed.

[0065] In the judgment, in the case where the voice mail recording execution display is chosen, a voice mail recording process is performed next (S1120). In the voice mail recording process, a setting to execute the voice mail recording of a telephone call received via the radio telephone device 7 is performed. After that, the received telephone call is answered automatically, and a process in which the received content is stored in a voice mail recording memory 27H is performed automatically.

[0066] On the other hand, in the judgment, in the case where the voice mail recording cancel display is chosen, a voice mail recording cancel process is performed (S1130). By this process, a process of voice-mail-recording the received telephone call is stopped. In addition, in the judgment, in the case where the cancellation display is chosen, the present routine is stopped once directly.

[0067] In the judgment, in the case where the voice mode display is chosen, a character conversion cancel process is performed (S1140). In the character conversion cancel process, a character conversion operation described next is cancelled. In the judgment, in the case where the voice character conversion mode display is chosen, a character conversion operation process is performed (S1150). In the character conversion operation process, a process in which the voice-mail-recorded voice stored in the received telephone recording memory 27G in the RAM 27 is converted into character data by the voice analysis processor 24, and then the data is stored in a received telephone character memory 27I is performed. In addition, in the case other than voice mail recording, a process in which a voice signal received via the radio telephone device 7 is converted into character data in real time and the character is displayed on the pen input device 3 is performed. In this way, in addition to listening to the received telephone call in voice, or instead of listening in voice, it can be checked as character data.

[0068] By the setting process above, whether a voice mail recording is performed or not can be set easily. In addition, since a telephone call is recognized converted into character data, it is useful for a telephone call at a place where a sound is not allowed, or it can be applied as a telephone device for deaf people.

[0069] In a condition where the telephone menu screen is displayed, in the case where the voice mail recording display display 247 is chosen, a voice mail recording display process is

performed next (S1090). In the voice mail recording display process, as shown in Fig. 24, a voice mail recording list screen is displayed first (S1200). The voice mail recording list screen, although the figure is omitted, has a voice mail recording list, a voice mail character list, a deletion display and a cancellation display. In this judgment, in the case where any voice mail recording or voice mail character is chosen from the voice mail recording list or the voice mail character list, the chosen one is played back next (S1220). The playback is performed by the ear telephone call device 49 or the speaker 51, calling up the voice mail recording data from the received telephone recording memory 27G in the RAM 27, in the case of the voice mail recording. In the case of the voice mail character, it is performed by the pen input device 3, calling up the voice mail character data from the received telephone character memory 27I in the RAM 27.

[0070] In the judgment, when deletion is found to be chosen, a deletion process is performed next (S1230). In the deletion process, a process in which the voice mail recording that is chosen from the voice mail recording list or the voice mail character list by the input pen 55 is deleted from the received telephone recording memory 27G or from the received telephone character memory 27I is performed.

[0071] In the judgment, in the case where the cancellation is chosen, the present routine is stopped once directly. By the voice mail recording display process described above, voice data which is voice-mail-recorded can be played back, and data that is voice-mail-recorded in the form of character data can be displayed. Fig. 25 is a flow chart of a data process routine, Fig. 26 is a schematic diagram of a data input screen, Fig. 27 is a flow chart of a transmission condition setting process routine, and Fig. 28 is a flow chart of a data transmission process routine.

[0072] When the data process in Fig. 25 is booted up, a display of the data input screen is performed first (S1300). As shown in Fig. 26, the data input screen has a menu region 291 and a data input region 293. A transmission condition setting display 295, a data transmission display 297, a received data display display 299 and a cancellation display 301 are provided for the menu region 291. The data input region 293 is blank at first.

[0073] After the display of the data input screen, judgment is performed (S1310). In the judgment, whether a data input is chosen, the transmission condition setting display 295 is

chosen, the data transmission display 297 is chosen, the received data display display 299 is chosen, or the cancellation display 301 is chosen is checked. Here, the choice of the data input means the case where the data input region 293 is chosen by the input pen 55.

[0074] In the case where the data input is chosen, a data input process is performed next (S1320). In the data input process, first, a cursor 305 is displayed on a point indicated by the input pen 55, for example, on a point 303 as shown in Fig. 26, and a pen input region frame 307 is displayed. Next, a process to store the inputted data in a transmission data data memory 27J is performed.

[0075] In the judgment, in the case where the transmission condition setting display 295 is chosen, a transmission condition setting process is performed next (S1330). The details will be described later. Furthermore, in the judgment, in the case where the data transmission display 297 is chosen, a data transmission process is performed next (S1340). In the case where the received data display display 299 is chosen, a received data display process is performed (S1350), and in the case where the cancellation display 301 is chosen, the present routine is stopped once directly.

[0076] In the transmission condition setting process of S1330, as shown in Fig. 27, a transmission condition setting screen display is performed first (S1400). The transmission condition setting screen, although the figure is omitted, has a choice display, a cancellation display and a termination display. Here, in the case where the choice display is chosen, a transmission condition change process is performed next (S1420). In the transmission condition change process, a transmission condition change screen that is not shown in the figure is displayed first. On the transmission condition change screen, a termination display, a cancellation display, and transmission condition choice displays for the case of performing data transmission, such as a BPS display, a character length display, a parity check display, a stop bit number display and an X parameter display are shown. Next, a process to input the information that is chosen on the screen is performed.

[0077] When the termination display is chosen in the condition of this transmission condition change screen or the transmission condition setting screen, the content of the transmission condition change process is fixed. In addition, when the cancellation display is chosen, the change of the transmission condition change process is cancelled. That is, the

previous content is not changed.

[0078] By the present transmission condition setting process, a standard of data transmission between computers can be set. In the case where the data transmission display 297 is chosen at S1310 in Fig. 25, as shown by the data transmission process in Fig. 28, a data transmission screen display is performed first (S1500). The data transmission screen, although the figure is omitted, has a destination choice display, a transmission time choice display, a setting display and a cancellation display. After the display, judgment is performed (S1510).

[0079] Here, in the case where the destination choice display is judged to be chosen, a transmission number setting process is performed next (S1520). In the transmission number setting process, a transmission number choice screen that is not shown in the figure is displayed first. The transmission number choice screen is provided with a transmission number list and a new number addition display. The transmission number list is provided with a plurality of transmission number displays. As for the new number addition display, when it is chosen, a pen input region frame is displayed, and a new destination number is inputted. Here, choice of a desired transmission number is waited, and when the choice is made, the number is set in a data transmission number memory 27K.

[0080] In the judgment, in the case where the transmission time choice display is chosen, a transmission time setting process is performed next (S1530). In the transmission time setting process, a transmission time choice screen that is not shown in the figure is displayed first. The transmission time choice screen is provided with a transmission time input display and an immediate display. When the transmission time input display is chosen, a pen input region frame is displayed, and data of a date and a time inputted by the pen is stored in a data transmission time memory 27L. In addition, when the immediate display is chosen, the immediate data is stored.

[0081] After the data of a date and a time is stored, judgment whether it is immediate or not is performed next (S1540). When it is judged not to be immediate, the present routine is stopped once directly. On the other hand, in the case where it is judged to be immediate, a data transmission process is performed next (S1550). In the data transmission process, the content stored in a transmission data memory 27M is transmitted immediately. The

transmission is sent under the transmission condition that is set at S1330 to the transmission number that is set at S1520.

[0082] In the judgment of S1510, in the case where the cancellation display is chosen, the present routine is stopped once directly. In the case where the setting display is chosen, a data setting process is performed next (S1560). In the data setting process, a data setting screen that is not shown in the figure is displayed first. This data setting screen is provided with a data input object display and an input form choice display. In the data input object display, a data input and output connector 73, a card connector 75 and a card connector 77, for example, are displayed. In the input form choice display, a text, a binary, MMR data, RS232C and the like are displayed.

[0083] By the present data transmission process, a setting for inputting and transmitting of data is performed. In the judgment of S1310 in Fig. 25, in the case where the received data display display 299 is chosen, a received data display process is performed (S1350). In the received data display process, a received data display list screen that is not shown in the figure is displayed, choice is requested, and the received data chosen is displayed as an image. Furthermore, in the case where an exterior output is chosen, output from the chosen port is performed.

[0084] In the judgment (S1310), in the case where the cancellation display 301 is chosen, the present routine is stopped once directly. By the data process described above, data can be transmitted directly to the other computer, or data sent from the other side can be displayed.

[0085] Fig. 29 is a flow chart of an application process routine, and Fig. 30 is a schematic diagram of an application choice screen. In the judgment of S420 in Fig. 9, in the case where the application menu display 139 is chosen, an application process is performed next (S460). In the application process, as shown in Fig. 29, the application choice screen is displayed first (S1600). As shown in Fig. 30, the application choice screen is provided with a menu region 311 and an application choice region 313.

[0086] The menu region 311 is provided with a replacement display 315, a full page display 317, a next page display 319, a cancellation display 321 and an execution display 323. The application choice region 313 is provided with an application list 325. The application list

325 is provided with an available or unavailable display 327. The available or unavailable display 327 is provided with an available display 329 shown by an open circle and an unavailable display 331 shown by a filled circle. The case of the unavailable display 331 means a condition where an application software card is not set in the card storage portion 79.

[0087] The application list 325 is provided with an application display 333. After the display of the application choice screen, judgment is performed next (S1610). In the judgment, which one on the application choice screen is chosen is judged. Here, in the case where a choice is made in the menu region 311, a process of the choice is performed, and in the case where the cancellation display 321 is chosen, the present routine is stopped once directly. In addition, in the case where the process in the application choice region 313 is chosen, an application execution is performed next (S1620). In the application execution, the process is moved into the chosen application routine. An example of the application will be described later.

[0088] Fig. 31 is a flow chart of an application menu registration process routine, and Fig. 32 is a flow chart of a communicator center menu registration process routine. The application menu registration process in Fig. 31 is booted up every predetermined time. First, whether or not it is an insertion of a new application software card is judged. This judgment is performed by detecting whether or not the application software cards 95 and 97 are inserted in the card connectors 75 and 77 first, and when they are inserted, judging whether or not the card is already application-registered.

[0089] When there is no new card inserted, the present routine is stopped once directly. When there is a new card inserted, an input of the registration data is performed (S1710). Predetermined data is inputted as registration data. Next, an application registration is performed (S1720). The application registration is performed in an application registration area 29A in the EEPROM 29. When the application registration is performed, it is displayed in the menu region 311 on the application choice screen shown in Fig. 30.

[0090] The communicator center menu registration process in Fig. 32 is booted up every predetermined time, and whether or not it is communicating with a communicator center 391 is judged first (S1800). When it is not on communication, the present routine is stopped once directly. When it is on communication with the communicator center 391, reading of a

communicator center menu is performed next (S1810). The communicator center menu, although the details will be described later, is sent included in the communication data with the communicator center 391. After the reading, whether or not there is a change in the communicator center menu is judged (S1820), and when there is no change, the present routine is stopped once directly. When there is a change, the communicator center menu registration is performed (S1830). The communicator center menu registration is performed in a communicator center menu area 29B in the EEPROM 29. In this way, the communicator center menu is revised accordingly.

[0091] Fig. 33 is a flow chart of a communicator center calling process routine, Fig. 34 to Fig. 36 are schematic diagrams of a communicator center calling process, and Fig. 37 is a schematic diagram of the communicator center 391. The communicator center 391, as shown in Fig. 37, is connected to a radio telephone center 393. The radio telephone center 393 is connected to a public network 395 and placed in every predetermined radio telephone service area, to perform interactive communication with a radio telephone device such as the personal communicator 1. The communicator center 391 is connected to a ticket center 397, a bank computer center 399, a securities company 401 or the like.

[0092] The communicator center calling process in Fig. 33 is a process that is booted up in the case where "11 communicator center calling/online" display 341 in Fig. 30 is chosen at S1610 in Fig. 29. First, a display of use items is performed (S1900). As shown in Fig. 34, the display of use items has a display to request choice 351 and a use item list 353. In the use item list 353, a use item name 355 is displayed. After the display, judgment is performed (S1910), and a display of an itemized menu of the chosen use item name 355 is performed (S1920).

[0093] As shown in Fig. 35, the itemized menu has a display to request choice 361 and a choice list 363. The choice list 363 has a choice name 365. After the display of the itemized menu, judgment is performed (S1930), and an individual process image of the chosen choice name 365 is displayed (S1940). As shown in Fig. 36, the individual process image is for requesting input or choice of predetermined data. Here, an example of ticket reservation is shown.

[0094] On the screen shown in Fig. 36, a title display of the individual process 371, displays

to request input 373, 377 and 381, input columns 375 and 379, a choice column 383 and a pen input region frame 385 are displayed. When the input into this individual process image is completed, an individual process execution is performed next (S1950). In the individual process execution, first, connection to a communicator center 391 is made. Next, the data inputted by the individual process image is sent to the communicator center 391, and a ticket reservation process by a predetermined procedure is performed.

[0095] The communicator center 391 described above, working with the personal communicator 1, enables ticket reservation and various information services to be performed effectively and correctly without making mistakes. In addition, by having an application process function, it can provide almost unlimited scope of use for the personal communicator 1.

[0096] Fig. 38 is a flow chart of a setting process routine, and Fig. 39 is a schematic diagram of a setting object choice screen. In the case where the setting menu display 141 is chosen at S420 in Fig. 9, the setting process in Fig. 38 is performed next. First, the setting object choice screen is displayed (S2000). As shown in Fig. 39, the setting object choice screen is provided with a setting object choice display 411, a setting object list 413 and a cancellation display 417. In the setting object list 413, a setting object name display 415 is shown.

[0097] After the display of the setting object choice screen, judgment is performed next (S2010). In the judgment, in the case where the cancellation display 417 is chosen, the present routine is stopped once directly. On the other hand, in the case where any in the setting object list 413 is chosen, the next setting process is performed. In the case where a fax transmission display 421 is chosen, a fax transmission setting process is performed (S2020). In the case where a fax reception display 423 is chosen, a fax reception setting process is performed (S2030), in the case where a data transmission display 425 is chosen, a data transmission setting process is performed (S2040), in the case where a data reception display 427 is chosen, a data reception setting process is performed (S2045), in the case where a telephone transmission display 429 is chosen, a telephone transmission setting process is performed (S2050), and in the case where a telephone reception display 431 is chosen, a telephone reception setting process is performed (S2060).

[0098] In each setting process of S2020 to S2060, a setting of the predetermined content is performed according to a predetermined procedure. By the communicator control described above, input and output of the data of a user or setting is performed.

[0099] Fig. 40 is a flow chart of a fax transmission time monitor process routine, and Fig. 41 is a flow chart of a data transmission time monitor process routine. This is booted up by the CPU 23 every predetermined time. When the fax transmission time monitor process in Fig. 40 is booted up, whether or not there is a transmission-wait is judged first (S2100). The transmission-wait is judged by whether or not there is fax data stored in the fax data memory 27A. Here, in the case where it is judged not to be transmission-wait, the present routine is stopped once directly. On the other hand, when there is a transmission-wait, whether or not it is the transmission time is judged next (S2110). The transmission time is performed by comparing the transmission time set in the transmission time memory 27D with the present time.

[0100] Here, when it is not the transmission time, the present routine is stopped once directly. When it is the transmission time, fax transmission is performed next (S2120). By the fax transmission time monitor process described above, reserved transmission of fax is performed.

[0101] When the data transmission time monitor in Fig. 41 is booted up, whether or not there is a transmission-wait is judged first (S2200). The transmission-wait is judged by whether or not there is data stored in the transmission data memory 27M. Here, in the case where it is judged not to be transmission-wait, the present routine is stopped once directly. On the other hand, when there is a transmission-wait, whether or not it is the transmission time is judged next (S2210). The transmission time is performed by comparing the transmission time set in the data transmission time memory 27L with the present time.

[0102] Here, when it is not the transmission time, the present routine is stopped once directly. When it is the transmission time, data transmission is performed next (S2220). By the data transmission time monitor process described above, reserved transmission of data is performed.

[0103] The personal communicator 1 described above can perform a telephone call, fax transmission, data transmission, various application processes and the like without operating

keyboards, and enables all of these to be taken along together. As a result, it has an extremely good effect that an information exchange device with high convenience can be obtained.

[0104] The present invention is not limited to the above-described embodiment, and various modes of embodiment are possible as long as the gist of the present invention is not changed.

[0105]

[Effect of the Invention] As for a portable communicator in Claim 1 of the present invention, confirmation of reception standby becomes possible even in a standby state where electric power source is not supplied to the whole body, and monitoring the operating state of the portable communicator becomes possible at all times.

[0106] As a result, it has an extremely good effect that high convenience can be obtained. As for a portable communicator in Claim 2 of the present invention, confirmation of a power supply capacity becomes possible even in a standby state where electric power source from a storage battery is not supplied to the whole body, and monitoring the operating state of the portable communicator becomes possible at all times.

[0107] As a result, it has an extremely good effect that high convenience can be obtained. As for a portable communicator in Claim 3 of the present invention, confirmation of reception standby and confirmation of a power supply capacity become possible even in a standby state where electric power source from a storage battery is not supplied to the whole body, and monitoring the operating state of the portable communicator becomes possible at all times.

[0108] As a result, it has an extremely good effect that high convenience can be obtained.

[Brief Description of Drawings]

Fig. 1 is a perspective view of a personal communicator 1.

Fig. 2 is a perspective view of a personal communicator 1.

Fig. 3 is a block diagram of a personal communicator 1.

Fig. 4 is a schematic diagram of a display state of a display 15.

Fig. 5 is a schematic diagram of a display control.

Fig. 6 is a flow chart of a display control process routine.

Fig. 7 is a flow chart of a monitor control process routine.

Fig. 8 is a diagram to show a use condition of a personal communicator 1 on standby

and in a charging state.

Fig. 9 is a flow chart of a communicator control process routine.

Fig. 10 is a schematic diagram of a situation report screen.

Fig. 11 is a flow chart of a fax process routine.

Fig. 12 is a schematic diagram of a document input screen.

Fig. 13 is a flow chart of a fax menu process routine.

Fig. 14 is a schematic diagram of a fax menu screen.

Fig. 15 is a flow chart of a fax transmission process routine.

Fig. 16 is a schematic diagram of a fax transmission screen.

Fig. 17 is a flow chart of a received fax display process routine.

Fig. 18 is a schematic diagram of a received fax list screen.

Fig. 19 is a flow chart of a deletion process routine.

Fig. 20 is a flow chart of a telephone process routine.

Fig. 21 is a schematic diagram of telephone menu screen.

Fig. 22 is a schematic diagram of a message choice screen.

Fig. 23 is a flow chart of a setting process routine.

Fig. 24 is a flow chart of a voice mail recording display process routine.

Fig. 25 is a flow chart of a data process routine.

Fig. 26 is a schematic diagram of a data input screen.

Fig. 27 is a flow chart of a transmission condition setting process routine.

Fig. 28 is a flow chart of a data transmission process routine.

Fig. 29 is a flow chart of an application process routine.

Fig. 30 is a schematic diagram of an application choice screen.

Fig. 31 is a flow chart of an application menu registration process routine.

Fig. 32 is a flow chart of a communicator center menu registration process routine.

Fig. 33 is a flow chart of a communicator center calling process routine.

Fig. 34 is a schematic diagram of a communicator center calling process.

Fig. 35 is a schematic diagram of a communicator center calling process.

Fig. 36 is a schematic diagram of a communicator center calling process.

Fig. 37 is a schematic diagram of a communicator center 391.

Fig. 38 is a flow chart of a setting process routine.

Fig. 39 is a schematic diagram of a setting object choice screen.

Fig. 40 is a flow chart of a fax transmission time monitor process routine.

Fig. 41 is a flow chart of a data transmission time monitor process routine.

[Description of Symbols]

1: personal communicator

3: pen input device

5: main body

7: radio telephone device